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      GUSELLA, JAMES F.

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<141> 2002-01-07

<150> 60/260,080
<151> 2001-01-06

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<212> PRT
<213> Homo sapiens

<400> 3

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            20                  25                  30

Val Leu Ile Gly Ser Glu His Gly Leu Ile Glu Val Asp Pro Val Ser
            35                  40                  45

Arg Glu Val Lys Asn Glu Val Ser Leu Val Ala Glu Gly Phe Leu Pro
        50                  55                  60

Glu Asp Gly Ser Gly Arg Ile Val Gly Val Gln Asp Leu Leu Asp Gln
65                  70                  75                  80

Glu Ser Val Cys Val Ala Thr Ala Ser Gly Asp Val Ile Leu Cys Ser
                85                  90                  95

Leu Ser Thr Gln Gln Leu Glu Cys Val Gly Ser Val Ala Ser Gly Ile
            100                 105                 110

Ser Val Met Ser Trp Ser Pro Asp Gln Glu Leu Val Leu Leu Ala Thr
            115                 120                 125

Gly Gln Gln Thr Leu Ile Met Met Thr Lys Asp Phe Glu Pro Ile Leu
        130                 135                 140

Glu Gln Gln Ile His Gln Asp Asp Phe Gly Glu Ser Lys Phe Ile Thr
145                 150                 155                 160

Val Gly Trp Gly Arg Lys Glu Thr Gln Phe His Gly Ser Glu Gly Arg
                165                 170                 175

Gln Ala Ala Phe Gln Met Gln Met His Glu Ser Ala Leu Pro Trp Asp
            180                 185                 190

Asp His Arg Pro Gln Val Thr Trp Arg Gly Asp Gly Gln Phe Phe Ala
        195                 200                 205

Val Ser Val Val Cys Pro Glu Thr Gly Ala Arg Lys Val Arg Val Trp
        210                 215                 220

Asn Arg Glu Phe Ala Leu Gln Ser Thr Ser Glu Pro Val Ala Gly Leu
225                 230                 235                 240

Gly Pro Ala Leu Ala Trp Lys Pro Ser Gly Ser Leu Ile Ala Ser Thr
                245                 250                 255

Gln Asp Lys Pro Asn Gln Gln Asp Ile Val Phe Phe Glu Lys Asn Gly
            260                 265                 270
```

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Leu Leu His Gly His Phe Thr Leu Pro Phe Leu Lys Asp Glu Val Lys
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Val Asn Asp Leu Leu Trp Asn Ala Asp Ser Ser Val Leu Ala Val Arg
    290             295             300

Leu Glu Asp Leu Gln Arg Glu Lys Ser Ser Ile Pro Lys Thr Cys Val
305             310             315                 320

Gln Leu Trp Thr Val Gly Asn Tyr His Trp Tyr Leu Lys Gln Ser Leu
            325             330             335

Ser Phe Ser Thr Cys Gly Lys Ser Lys Ile Val Ser Leu Met Trp Asp
            340             345             350

Pro Val Thr Pro Tyr Arg Leu His Val Leu Cys Gln Gly Trp His Tyr
            355             360             365

Leu Ala Tyr Asp Trp His Trp Thr Thr Asp Arg Ser Val Gly Asp Asn
  . 370             375             380

Ser Ser Asp Leu Ser Asn Val Ala Val Ile Asp Gly Asn Arg Val Leu
385             390             395             400

Val Thr Val Phe Arg Gln Thr Val Val Pro Pro Pro Met Cys Thr Tyr
            405             410             415

Gln Leu Leu Phe Pro His Pro Val Asn Gln Val Thr Phe Leu Ala His
            420             425             430

Pro Gln Lys Ser Asn Asp Leu Ala Val Leu Asp Ala Ser Asn Gln Ile
        435             440             445

Ser Val Tyr Lys Cys Gly Asp Cys Pro Ser Ala Asp Pro Thr Val Lys
    450             455             460

Leu Gly Ala Val Gly Gly Ser Gly Phe Lys Val Cys Leu Arg Thr Pro
465             470             475             480

His Leu Glu Lys Arg Tyr Lys Ile Gln Phe Glu Asn Asn Glu Asp Gln
            485             490             495

Asp Val Asn Pro Leu Lys Leu Gly Leu Leu Thr Trp Ile Glu Glu Asp
            500             505             510

Val Phe Leu Ala Val Ser His Ser Glu Phe Ser Pro Arg Ser Val Ile
            515             520             525

His His Leu Thr Ala Ala Ser Ser Glu Met Asp Glu Glu His Gly Gln
    530             535             540

Leu Asn Val Ser Ser Ser Ala Ala Val Asp Gly Val Ile Ile Ser Leu
545             550             555             560

Cys Cys Asn Ser Lys Thr Lys Ser Val Val Leu Gln Leu Ala Asp Gly
            565             570             575

Gln Ile Phe Lys Tyr Leu Trp Glu Ser Pro Ser Leu Ala Ile Lys Pro
            580             585             590

Trp Lys Asn Ser Gly Gly Phe Pro Val Arg Phe Pro Tyr Pro Cys Thr
            595             600             605
```

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Gln Thr Glu Leu Ala Met Ile Gly Glu Glu Glu Cys Val Leu Gly Leu
    610                 615                 620

Thr Asp Arg Cys Arg Phe Phe Ile Asn Asp Ile Glu Val Ala Ser Asn
625                 630                 635                 640

Ile Thr Ser Phe Ala Val Tyr Asp Glu Phe Leu Leu Leu Thr Thr His
                645                 650                 655

Ser His Thr Cys Gln Cys Phe Cys Leu Arg Asp Ala Ser Phe Lys Thr
                660                 665                 670

Leu Gln Ala Gly Leu Ser Ser Asn His Val Ser His Gly Glu Val Leu
        675                 680                 685

Arg Lys Val Glu Arg Gly Ser Arg Ile Val Thr Val Val Pro Gln Asp
    690                 695                 700

Thr Lys Leu Val Leu Gln Met Pro Arg Gly Asn Leu Glu Val Val His
705                 710                 715                 720

His Arg Ala Leu Val Leu Ala Gln Ile Arg Lys Trp Leu Asp Lys Leu
                725                 730                 735

Met Phe Lys Glu Ala Phe Glu Cys Met Arg Lys Leu Arg Ile Asn Leu
            740                 745                 750


Asn Pro Ile Tyr Asp His Asn Pro Lys Val Phe Leu Gly Asn Val Glu
        755                 760                 765

Thr Phe Ile Lys Gln Ile Asp Ser Val Asn His Ile Asn Leu Phe Phe
    770                 775                 780

Thr Glu Leu Lys Glu Glu Asp Val Thr Lys Thr Met Tyr Pro Ala Pro
785                 790                 795                 800

Val Thr Ser Ser Val Tyr Leu Ser Arg Asp Pro Asp Gly Asn Lys Ile
            805                 810                 815

Asp Leu Val Cys Asp Ala Met Arg Ala Val Met Glu Ser Ile Asn Pro
            820                 825                 830

His Lys Tyr Cys Leu Ser Ile Leu Thr Ser His Val Lys Lys Thr Thr
        835                 840                 845

Pro Glu Leu Glu Ile Val Leu Gln Lys Val His Glu Leu Gln Gly Asn
    850                 855                 860

Ala Pro Ser Asp Pro Asp Ala Val Ser Ala Glu Glu Ala Leu Lys Tyr
865                 870                 875                 880

Leu Leu His Leu Val Asp Val Asn Glu Leu Tyr Asp His Ser Leu Gly
            885                 890                 895

Thr Tyr Asp Phe Asp Leu Val Leu Met Val Ala Glu Lys Ser Gln Lys
        900                 905                 910

Asp Pro Lys Glu Tyr Leu Pro Phe Leu Asn Thr Leu Lys Lys Met Glu
        915                 920                 925

Thr Asn Tyr Gln Arg Phe Thr Ile Asp Lys Tyr Leu Lys Arg Tyr Glu
    930                 935                 940

Lys Ala Ile Gly His Leu Ser Lys Cys Gly Pro Glu Tyr Phe Pro Glu
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      945                    950                    955                    960
      Cys Leu Asn Leu Ile Lys Asp Lys Asn Leu Tyr Asn Glu Ala Leu Lys
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      Leu Tyr Ser Pro Ser Ser Gln Gln Tyr Gln Asp Ile Ser Ile Ala Tyr
                       980                    985                    990

      Gly Glu His Leu Met Gln Glu His Met Tyr Glu Pro Ala Gly Leu Met
                  995                    1000                   1005

      Phe Ala Arg Cys Gly Ala His Glu Lys Ala Leu Ser Ala Phe Leu Thr
           1010                   1015                   1020

      Cys Gly Asn Trp Lys Gln Ala Leu Cys Val Ala Ala Gln Leu Asn Phe
      1025                   1030                   1035                   1040

      Thr Lys Asp Gln Leu Val Gly Leu Gly Arg Thr Leu Ala Gly Lys Leu
                       1045                   1050                   1055


      Val Glu Gln Arg Lys His Ile Asp Ala Ala Met Val Leu Glu Glu Ser
                  1060                   1065                   1070

      Ala Gln Asp Tyr Glu Glu Ala Val Leu Leu Leu Leu Glu Gly Ala Ala
                  1075                   1080                   1085

      Trp Glu Glu Ala Leu Arg Leu Val Tyr Lys Tyr Asn Arg Leu Asp Ile
           1090                   1095                   1100

      Ile Glu Thr Asn Val Lys Pro Ser Ile Leu Glu Ala Gln Lys Asn Tyr
      1105                   1110                   1115                   1120

      Met Ala Phe Leu Asp Ser Gln Thr Ala Thr Phe Ser Arg His Lys Lys
                       1125                   1130                   1135

      Arg Leu Leu Val Val Arg Glu Leu Lys Glu Gln Ala Gln Gln Ala Gly
                  1140                   1145                   1150

      Leu Asp Asp Glu Val Pro His Gly Gln Glu Ser Asp Leu Phe Ser Glu
                  1155                   1160                   1165

      Thr Ser Ser Val Val Ser Gly Ser Glu Met Ser Gly Lys Tyr Ser His
           1170                   1175                   1180

      Ser Asn Ser Arg Ile Ser Ala Arg Ser Ser Lys Asn Arg Arg Lys Ala
      1185                   1190                   1195                   1200

      Glu Arg Lys Lys His Ser Leu Lys Glu Gly Ser Pro Leu Glu Asp Leu
                  1205                   1210                   1215

      Ala Leu Leu Glu Ala Leu Ser Glu Val Val Gln Asn Thr Glu Asn Leu
                  1220                   1225                   1230

      Lys Asp Glu Val Tyr His Ile Leu Lys Val Leu Phe Leu Phe Glu Phe
           1235                   1240                   1245

      Asp Glu Gln Gly Arg Glu Leu Gln Lys Ala Phe Glu Asp Thr Leu Gln
           1250                   1255                   1260

      Leu Met Glu Arg Ser Leu Pro Glu Ile Trp Thr Leu Thr Tyr Gln Gln
      1265                   1270                   1275                   1280

      Asn Ser Ala Thr Pro Val Leu Gly Pro Asn Ser Thr Ala Asn Ser Ile
                  1285                   1290                   1295
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Met Ala Ser Tyr Gln Gln Gln Lys Thr Ser Val Pro Val Leu Asp Ala
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Glu Leu Phe Ile Pro Pro Lys Ile Asn Arg Arg Thr Gln Trp Lys Leu
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Ser Leu Leu Asp
        1330


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<212> PRT
<213> Mus musculus

<400> 4
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Ala Pro Gly Lys Pro Gln Cys Phe Cys Leu Arg Ala Glu Gln Gly Thr
                20                25                30

Val Leu Ile Gly Ser Glu Arg Gly Leu Thr Glu Val Asp Pro Val Arg
            35                40                45

Arg Glu Val Lys Thr Glu Ile Ser Leu Val Ala Glu Gly Phe Leu Pro
    50                    55                60

Glu Asp Gly Ser Gly Cys Ile Val Gly Ile Gln Asp Leu Leu Asp Gln
    65                70                75                    80

Glu Ser Val Cys Val Ala Thr Ala Ser Gly Asp Val Ile Val Cys Asn
                85                90                95

Leu Ser Thr Gln Gln Leu Glu Cys Val Gly Ser Val Ala Ser Gly Ile
            100               105               110

Ser Val Met Ser Trp Ser Pro Asp Gln Glu Leu Leu Leu Leu Ala Thr
            115               120               125

Ala Gln Gln Thr Leu Ile Met Met Thr Lys Asp Phe Glu Val Ile Ala
    130               135               140

Glu Glu Gln Ile His Gln Asp Asp Phe Gly Glu Gly Lys Phe Val Thr
145               150               155               160

Val Gly Trp Gly Ser Lys Gln Thr Gln Phe His Gly Ser Glu Gly Arg
            165               170               175

Pro Thr Ala Phe Pro Val Gln Leu Pro Glu Asn Ala Leu Pro Trp Asp
            180               185               190

Asp Arg Arg Pro His Ile Thr Trp Arg Gly Asp Gly Gln Tyr Phe Ala
        195               200               205

Val Ser Val Val Cys Arg Gln Thr Glu Ala Arg Lys Ile Arg Val Trp
    210               215               220

Asn Arg Glu Phe Ala Leu Gln Ser Thr Ser Glu Ser Val Pro Gly Leu
225               230               235               240

Gly Pro Ala Leu Ala Trp Lys Pro Ser Gly Ser Leu Ile Ala Ser Thr
            245               250               255
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Gln Asp Lys Pro Asn Gln Gln Asp Val Val Phe Phe Glu Lys Asn Gly
            260             265             270

Leu Leu His Gly His Phe Thr Leu Pro Phe Leu Lys Asp Glu Val Lys
            275             280             285

Val Asn Asp Leu Leu Trp Asn Ala Asp Ser Ser Val Leu Ala Ile Trp
    290             295             300

Leu Glu Asp Leu Pro Lys Glu Asp Ser Ser Thr Leu Lys Ser Tyr Val
305             310             315             320

Gln Leu Trp Thr Val Gly Asn Tyr His Trp Tyr Leu Lys Gln Ser Leu
            325             330             335

Pro Phe Ser Thr Thr Gly Lys Asn Gln Ile Val Ser Leu Leu Trp Asp
            340             345             350

Pro Val Thr Pro Cys Arg Leu His Val Leu Cys Thr Gly Trp Arg Tyr
            355             360             365

Leu Cys Cys Asp Trp His Trp Thr Thr Asp Arg Ser Ser Gly Asn Ser
    370             375             380

Ala Asn Asp Leu Ala Asn Val Ala Val Ile Asp Gly Asn Arg Val Leu
385             390             395             400

Val Thr Val Phe Arg Gln Thr Val Val Pro Pro Pro Met Cys Thr Tyr
            405             410             415

Arg Leu Leu Ile Pro His Pro Val Asn Gln Val Ile Phe Ser Ala His
            420             425             430

Leu Gly Asn Asp Leu Ala Val Leu Asp Ala Ser Asn Gln Ile Ser Val
            435             440             445

Tyr Lys Cys Gly Asp Lys Pro Asn Met Asp Ser Thr Val Lys Leu Gly
    450             455             460

Ala Val Gly Gly Asn Gly Phe Lys Val Pro Leu Thr Thr Pro His Leu
465             470             475             480

Glu Lys Arg Tyr Ser Ile Gln Phe Gly Asn Asn Glu Glu Glu Glu Glu
            485             490             495

Glu Asp Phe Ala Leu Gln Leu Ser Phe Leu Thr Trp Val Glu Asp Asp
            500             505             510

Thr Phe Leu Ala Ile Ser Tyr Ser His Ser Ser Ser Gln Ser Ile Ile
            515             520             525

His His Leu Thr Val Thr His Ser Glu Val Asp Glu Glu Gln Gly Gln
    530             535             540

Leu Asp Val Ser Ser Ser Val Thr Val Asp Gly Val Val Ile Gly Leu
545             550             555             560

Cys Cys Cys Ser Lys Thr Lys Ser Leu Ala Val Gln Leu Ala Asp Gly
            565             570             575

Gln Val Leu Lys Ile Leu Trp Glu Ser Pro Ser Leu Ala Val Glu Pro
            580             585             590
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Trp Lys Asn Ser Glu Gly Ile Pro Val Arg Phe Val His Pro Cys Thr
        595   600   605

Gln Met Glu Val Ala Thr Ile Gly Gly Glu Glu Cys Val Leu Gly Leu
        610   615   620

Thr Asp Arg Cys Arg Phe Phe Ile Leu Val Thr Glu Val Ala Ser Asn
625   630   635   640

Ile Thr Ser Phe Ala Val Cys Asp Asp Phe Leu Leu Val Thr Thr His
            645   650   655

Ser His Thr Cys Gln Gly Phe Ser Leu Ser Gly Ala Ser Leu Lys Met
            660   665   670

Leu Gln Ala Ala Leu Ser Gly Ser His Glu Ala Ser Gly Glu Ile Leu
        675   680   685

Arg Lys Val Val Trp Gly Ser Arg Ile Val Thr Val Val Pro Gln Asp
    690   695   700

Thr Lys Leu Ile Leu Gln Met Pro Arg Gly Asn Leu Glu Val Val His
705   710   715   720

His Arg Ala Leu Val Leu Ala Gln Ile Arg Lys Trp Leu Asp Lys Leu
            725   730   735

Met Phe Lys Glu Ala Phe Glu Cys Met Arg Lys Leu Arg Ile Asn Leu
        740   745   750

Asn Leu Ile His Asp His Asn Pro Lys Val Phe Leu Glu Asn Val Glu
        755   760   765

Thr Phe Val Phe Gln Ile Asp Ser Val Asn His Ile Asn Leu Phe Phe
    770   775   780

Thr Glu Leu Arg Glu Glu Asp Val Thr Lys Thr Met Tyr Pro Pro Pro
785   790   795   800

Ile Thr Lys Ser Val Gln Val Ser Thr His Pro Asp Gly Lys Lys Leu
            805   810   815

Asp Leu Ile Cys Asp Ala Met Arg Ala Ala Met Glu Ala Ile Asn Pro
            820   825   830

Arg Lys Phe Cys Leu Ser Ile Leu Thr Ser His Val Lys Lys Thr Thr
        835   840   845

Pro Glu Leu Glu Ile Val Leu Gln Lys Val Gln Glu Leu Gln Gly Asn
        850   855   860

Leu Pro Phe Asp Pro Glu Ser Val Ser Val Glu Glu Ala Leu Lys Tyr
865   870   875   880

Leu Leu Leu Leu Val Asp Val Asn Glu Leu Phe Asn His Ser Leu Gly
            885   890   895

Thr Tyr Asp Phe Asn Leu Val Leu Met Val Ala Glu Lys Ser Gln Lys
        900   905   910

Asp Pro Lys Glu Tyr Leu Pro Phe Leu Asn Thr Leu Lys Lys Met Glu
        915   920   925

Thr Asn Tyr Gln Arg Phe Thr Ile Asp Lys Tyr Leu Lys Arg Tyr Glu

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              930                 935                 940
Lys Ala Leu Gly His Leu Ser Lys Cys Gly Pro Glu Tyr Phe Thr Glu
945                 950                 955                 960

Cys Leu Asn Leu Ile Lys Asp Lys Asn Leu Tyr Lys Glu Ala Leu Lys
                965                 970                 975

Leu Tyr Arg Pro Asp Ser Pro Gln Tyr Gln Ala Val Ser Met Ala Tyr
                980                 985                 990

Gly Glu His Leu Met Gln Glu His Leu Tyr Glu Pro Ala Gly Leu Val
                995                 1000                1005

Phe Ala Arg Cys Gly Ala Gln Glu Lys Ala Leu Glu Ala Phe Leu Ala
    1010                1015                1020

Cys Gly Ser Trp Gln Gln Ala Leu Cys Val Ala Ala Gln Leu Gln Met
1025                1030                1035                1040

Ser Lys Asp Lys Val Ala Gly Leu Ala Arg Thr Leu Ala Gly Lys Leu
                1045                1050 .              1055

Val Glu Gln Arg Lys His Ser Glu Ala Ala Thr Val Leu Glu Gln Tyr
                1060 .              1065                1070

Ala Gln Asp Tyr Glu Glu Ala Val Leu Leu Leu Leu Glu Gly Ser Ala
                1075                1080                1085

Trp Glu Glu Ala Leu Arg Leu Val Tyr Lys Tyr Asp Arg Val Asp Ile
    1090                1095                1100

Ile Glu Thr Ser Ile Lys Pro Ser Ile Leu Glu Ala Gln Lys Asn Tyr
1105                1110                1115                1120

Met Asp Phe Leu Asp Ser Glu Thr Ala Thr Phe Ile Arg His Lys Asn
                1125                1130 .              1135

Arg Leu Gln Val Val Arg Ala Leu Arg Arg Gln Ala Pro Gln Val His
                1140                1145                1150

Val Asp His Glu Val Ala His Gly Pro Glu Ser Asp Leu Phe Ser Glu
                1155                1160                1165

Thr Ser Ser Ile Met Ser Gly Ser Glu Met Ser Gly Arg Tyr Ser His
    1170                1175                1180

Ser Asn Ser Arg Ile Ser Ala Arg Ser Ser Lys Asn Arg Arg Lys Ala
1185                1190                1195                1200

Glu Arg Lys Lys His Ser Leu Lys Glu Gly Ser Pro Leu Glu Gly Leu
                1205                1210                1215

Ala Leu Leu Glu Ala Leu Ser Glu Val Val Gln Ser Val Glu Lys Leu
                1220                1225                1230

Lys Asp Glu Val Arg Ala Ile Leu Lys Val Leu Phe Leu Phe Glu Phe
    1235                1240                1245

Glu Glu Gln Ala Lys Glu Leu Gln Arg Ala Phe Glu Ser Thr Leu Gln
    1250                1255                1260

Leu Met Glu Arg Ala Val Pro Glu Ile Trp Thr Pro Ala Gly Gln Gln
1265                1270                1275                1280
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Ser Ser Thr Thr Pro Val Leu Gly Pro Ser Ser Thr Ala Asn Ser Ile
            1285             1290             1295

Thr Ala Ser Tyr Gln Gln Gln Lys Thr Cys Val Pro Ala Leu Asp Ala
            1300             1305             1310

Gly Val Tyr Met Pro Pro Lys Met Asp Pro Arg Ser Gln Trp Lys Leu
            1315             1320             1325

Ser Leu Leu Glu
      1330
```

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<210> 5
<211> 1332
<212> PRT
<213> Homo sapiens

<400> 5
Met Arg Asn Leu Lys Leu Phe Arg Thr Leu Glu Phe Arg Asp Ile Gln
  1               5               10              15

Gly Pro Gly Asn Pro Gln Cys Phe Ser Leu Arg Thr Glu Gln Gly Thr
            20              25              30

Val Leu Ile Gly Ser Glu His Gly Leu Ile Glu Val Asp Pro Val Ser
            35              40              45

Arg Glu Val Lys Asn Glu Val Ser Leu Val Ala Glu Gly Phe Leu Pro
      50              55              60

Glu Asp Gly Ser Gly Arg Ile Val Gly Val Gln Asp Leu Leu Asp Gln
  65              70              75              80

Glu Ser Val Cys Val Ala Thr Ala Ser Gly Asp Val Ile Leu Cys Ser
                  85              90              95

Leu Ser Thr Gln Gln Leu Glu Cys Val Gly Ser Val Ala Ser Gly Ile
            100             105             110

Ser Val Met Ser Trp Ser Pro Asp Gln Glu Leu Val Leu Leu Ala Thr
            115             120             125

Gly Gln Gln Thr Leu Ile Met Met Thr Lys Asp Phe Glu Pro Ile Leu
      130             135             140

Glu Gln Gln Ile His Gln Asp Asp Phe Gly Glu Ser Lys Phe Ile Thr
145             150             155             160

Val Gly Trp Gly Arg Lys Glu Thr Gln Phe His Gly Ser Glu Gly Arg
                  165             170             175

Gln Ala Ala Phe Gln Met Gln Met His Glu Ser Ala Leu Pro Trp Asp
            180             185             190

Asp His Arg Pro Gln Val Thr Trp Arg Gly Asp Gly Gln Phe Phe Ala
            195             200             205

Val Ser Val Val Cys Pro Glu Thr Gly Ala Arg Lys Val Arg Val Trp
      210             215             220

Asn Arg Glu Phe Ala Leu Gln Ser Thr Ser Glu Pro Val Ala Gly Leu
225             230             235             240
```

Gly Pro Ala Leu Ala Trp Lys Pro Ser Gly Ser Leu Ile Ala Ser Thr
                    245   250   255

Gln Asp Lys Pro Asn Gln Gln Asp Ile Val Phe Phe Glu Lys Asn Gly
                260   265   270

Leu Leu His Gly His Phe Thr Leu Pro Phe Leu Lys Asp Glu Val Lys
        275   280   285

Val Asn Asp Leu Leu Trp Asn Ala Asp Ser Ser Val Leu Ala Val Trp
    290   295   300

Leu Glu Asp Leu Gln Arg Glu Glu Ser Ser Ile Pro Lys Thr Cys Val
305   310   315   320

Gln Leu Trp Thr Val Gly Asn Tyr His Trp Tyr Leu Lys Gln Ser Leu
                325   330   335

Ser Phe Ser Thr Cys Gly Lys Ser Lys Ile Val Ser Leu Met Trp Asp
            340   345   350

Pro Val Thr Pro Tyr Arg Leu His Val Leu Cys Gln Gly Trp His Tyr
            355   360   365

Leu Ala Tyr Asp Trp His Trp Thr Thr Asp Arg Ser Val Gly Asp Asn
    370   375   380

Ser Ser Asp Leu Ser Asn Val Ala Val Ile Asp Gly Asn Arg Val Leu
385   390   395   400

Val Thr Val Phe Arg Gln Thr Val Val Pro Pro Pro Met Cys Thr Tyr
            405   410   415

Gln Leu Leu Phe Pro His Pro Val Asn Gln Val Thr Phe Leu Ala His
            420   425   430

Pro Gln Lys Ser Asn Asp Leu Ala Val Leu Asp Ala Ser Asn Gln Ile
        435   440   445

Ser Val Tyr Lys Cys Gly Asp Cys Pro Ser Ala Asp Pro Thr Val Lys
    450   455   460

Leu Gly Ala Val Gly Gly Ser Gly Phe Lys Val Cys Leu Arg Thr Pro
465   470   475   480

His Leu Glu Lys Arg Tyr Lys Ile Gln Phe Glu Asn Asn Glu Asp Gln
            485   490   495

Asp Val Asn Pro Leu Lys Leu Gly Leu Leu Thr Trp Ile Glu Glu Asp
            500   505   510

Val Phe Leu Ala Val Ser His Ser Glu Phe Ser Pro Arg Ser Val Ile
        515   520   525

His His Leu Thr Ala Ala Ser Ser Glu Met Asp Glu Glu His Gly Gln
    530   535   540

Leu Asn Val Ser Ser Ser Ala Ala Val Asp Gly Val Ile Ile Ser Leu
545   550   555   560

Cys Cys Asn Ser Lys Thr Lys Ser Val Val Leu Gln Leu Ala Asp Gly
            565   570   575

Gln Ile Phe Lys Tyr Leu Trp Glu Ser Pro Ser Leu Ala Ile Lys Pro

```
                 580                    585                    590
Trp Lys Asn Ser Gly Gly Phe Pro Val Arg Phe Pro Tyr Pro Cys Thr
        595             600             605

Gln Thr Glu Leu Ala Met Ile Gly Glu Glu Glu Cys Val Leu Gly Leu
    610             615             620

Thr Asp Arg Cys Arg Phe Phe Ile Asn Asp Ile Glu Val Ala Ser Asn
625             630             635             640

Ile Thr Ser Phe Ala Val Tyr Asp Glu Phe Leu Leu Leu Thr Thr His
            645             650             655

Ser His Thr Cys Gln Cys Phe Cys Leu Arg Asp Ala Ser Phe Lys Thr
        660             665             670

Leu Gln Ala Gly Leu Ser Ser Asn His Val Ser His Gly Glu Val Leu
    675             680             685

Arg Lys Val Glu Arg Gly Ser Arg Ile Val Thr Val Val Pro Gln Asp
    690             695             700

Thr Lys Leu Val Leu Gln Met Pro Arg Gly Asn Leu Glu Val Val His
705             710             715             720

His Arg Ala Leu Val Leu Ala Gln Ile Arg Lys Trp Leu Asp Lys Leu
            725             730             735


Met Phe Lys Glu Ala Phe Glu Cys Met Arg Lys Leu Arg Ile Asn Leu
        740             745             750

Asn Leu Ile Tyr Asp His Asn Pro Lys Val Phe Leu Gly Asn Val Glu
        755             760             765

Thr Phe Ile Lys Gln Ile Asp Ser Val Asn His Ile Asn Leu Phe Phe
    770             775             780

Thr Glu Leu Lys Glu Glu Asp Val Thr Lys Thr Met Tyr Pro Ala Pro
785             790             795             800

Val Thr Ser Ser Val Tyr Leu Ser Arg Asp Pro Asp Gly Asn Lys Ile
            805             810             815

Asp Leu Val Cys Asp Ala Met Arg Ala Val Met Glu Ser Ile Asn Pro
        820             825             830

His Lys Tyr Cys Leu Ser Ile Leu Thr Ser His Val Lys Lys Thr Thr
        835             840             845

Pro Glu Leu Glu Ile Val Leu Gln Lys Val His Glu Leu Gln Gly Asn
    850             855             860

Ala Pro Ser Asp Pro Asp Ala Val Ser Ala Glu Glu Ala Leu Lys Tyr
865             870             875             880

Leu Leu His Leu Val Asp Val Asn Glu Leu Tyr Asp His Ser Leu Gly
            885             890             895

Thr Tyr Asp Phe Asp Leu Val Leu Met Val Ala Glu Lys Ser Gln Lys
        900             905             910

Asp Pro Lys Glu Tyr Leu Pro Phe Leu Asn Thr Leu Lys Lys Met Glu
        915             920             925
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Thr Asn Tyr Gln Arg Phe Thr Ile Asp Lys Tyr Leu Lys Arg Tyr Glu
    930                 935                 940

Lys Ala Ile Gly His Leu Ser Lys Cys Gly Pro Glu Tyr Phe Pro Glu
945                 950                 955                 960

Cys Leu Asn Leu Ile Lys Asp Lys Asn Leu Tyr Asn Glu Ala Leu Lys
                965                 970                 975

Leu Tyr Ser Pro Ser Ser Gln Gln Tyr Gln Asp Ile Ser Ile Ala Tyr
            980                 985                 990

Gly Glu His Leu Met Gln Glu His Met Tyr Glu Pro Ala Gly Leu Met
        995                 1000                1005

Phe Ala Arg Cys Gly Ala His Glu Lys Ala Leu Ser Ala Phe Leu Thr
    1010                1015                1020

Cys Gly Asn Trp Lys Gln Ala Leu Cys Val Ala Ala Gln Leu Asn Phe
1025                1030                1035                1040

Thr Lys Asp Gln Leu Val Gly Leu Gly Arg Thr Leu Ala Gly Lys Leu
                1045                1050                1055

Val Glu Gln Arg Lys His Ile Asp Ala Ala Met Val Leu Glu Glu Ser
            1060                1065                1070

Ala Gln Asp Tyr Glu Glu Ala Val Leu Leu Leu Leu Glu Gly Ala Ala
        1075                1080                1085

Trp Glu Glu Ala Leu Arg Leu Val Tyr Lys Tyr Asn Arg Leu Asp Ile
    1090                1095                1100

Ile Glu Thr Asn Val Lys Pro Ser Ile Leu Glu Ala Gln Lys Asn Tyr
1105                1110                1115                1120

Met Ala Phe Leu Asp Ser Gln Thr Ala Thr Phe Ser Arg His Lys Lys
                1125                1130                1135

Arg Leu Leu Val Val Arg Glu Leu Lys Glu Gln Ala Gln Gln Ala Gly
            1140                1145                1150

Leu Asp Asp Glu Val Pro His Gly Gln Glu Ser Asp Leu Phe Ser Glu
        1155                1160                1165

Thr Ser Ser Val Val Ser Gly Ser Glu Met Ser Gly Lys Tyr Ser His
    1170                1175                1180

Ser Asn Ser Arg Ile Ser Ala Arg Ser Ser Lys Asn Arg Arg Lys Ala
1185                1190                1195                1200

Glu Arg Lys Lys His Ser Leu Lys Glu Gly Ser Pro Leu Glu Asp Leu
                1205                1210                1215

Ala Leu Leu Glu Ala Leu Ser Glu Val Val Gln Asn Thr Glu Asn Leu
            1220                1225                1230

Lys Asp Glu Val Tyr His Ile Leu Lys Val Leu Phe Leu Phe Glu Phe
        1235                1240                1245

Asp Glu Gln Gly Arg Glu Leu Gln Lys Ala Phe Glu Asp Thr Leu Gln
    1250                1255                1260
```

Leu Met Glu Arg Ser Leu Pro Glu Ile Trp Thr Leu Thr Tyr Gln Gln
1265   1270   1275   1280

Asn Ser Ala Thr Pro Val Leu Gly Pro Asn Ser Thr Ala Asn Ser Ile
                1285   1290   1295

Met Ala Ser Tyr Gln Gln Gln Lys Thr Ser Val Pro Val Leu Asp Ala
                1300   1305   1310

Glu Leu Phe Ile Pro Pro Lys Ile Asn Arg Arg Thr Gln Trp Lys Leu
                1315   1320   1325

Ser Leu Leu Asp
    1330

<210> 6
<211> 1213
<212> PRT
<213> Drosophila melanogaster

<400> 6
Met Arg Asn Leu Lys Leu Arg Tyr Cys Lys Glu Leu Asn Ala Val Ala
    1   5   10   15

His Pro Gln His Leu Leu Leu Gln Pro Glu Leu Asn Gly Gly Ala Ser
                20   25   30

Asp Ile Tyr Phe Val Val Ala Asp Asn Lys Thr Tyr Ala Val Gln Glu
                35   40   45

Ser Gly Asp Val Arg Leu Lys Val Ile Ala Asp Leu Pro Asp Ile Val
    50   55   60

Gly Val Glu Phe Leu Gln Leu Asp Asn Ala Ile Cys Val Ala Ser Gly
    65   70   75   80

Ala Gly Glu Val Ile Leu Val Asp Pro Gln Thr Gly Ala Thr Ser Glu
                85   90   95

Gly Thr Phe Cys Asp Val Gly Ile Glu Ser Met Ala Trp Ser Pro Asn
                100   105   110

Gln Glu Val Val Ala Phe Val Thr Arg Thr His Asn Val Val Leu Met
                115   120   125

Thr Ser Thr Phe Asp Val Ile Ala Glu Gln Pro Leu Asp Ala Glu Leu
    130   135   140

Asp Pro Asp Gln Gln Phe Val Asn Val Gly Trp Gly Lys Lys Glu Thr
145   150   155   160

Gln Phe His Gly Ser Glu Gly Lys Gln Ala Ala Lys Gln Lys Glu Ser
                165   170   175

Asp Ser Thr Phe Thr Arg Asp Glu Gln Glu Leu Asn Gln Asp Val Ser
                180   185   190

Ile Ser Trp Arg Gly Asp Gly Glu Phe Phe Val Val Ser Tyr Val Ala
                195   200   205

Ala Gln Leu Gly Arg Thr Phe Lys Val Tyr Asp Ser Glu Gly Lys Leu
    210   215   220

Asn His Thr Ala Glu Lys Ser Ala Asn Leu Lys Asp Ser Val Val Trp

```
          225                   230                   235                   240
Arg Pro Thr Gly Asn Trp Ile Ala Val Pro Gln Gln Phe Pro Asn Lys
                245                   250                   255

Ser Thr Ile Ala Leu Phe Glu Lys Asn Gly Leu Arg His Arg Glu Leu
                260                   265                   270

Val Leu Pro Phe Asp Leu Gln Glu Glu Pro Val Val Gln Leu Arg Trp
                275                   280                   285

Ser Glu Asp Ser Asp Ile Leu Ala Ile Arg Thr Cys Ala Lys Glu Glu
        290                   295                   300

Gln Arg Val Tyr Leu Tyr Thr Ile Gly Asn Tyr His Trp Tyr Leu Lys
305                   310                   315                   320

Gln Val Leu Ile Phe Glu Gln Ala Asp Pro Leu Ala Leu Leu His Trp
                325                   330                   335

Asp Thr Arg Cys Gly Ala Glu His Thr Leu His Val Leu Lys Glu Ser
                340                   345                   350

Gly Lys His Leu Val Tyr Arg Trp Ala Phe Ala Val Asp Arg Asn Asn
                355                   360                   365

Ser Ile Val Gly Val Ile Asp Gly Lys Arg Leu Leu Leu Thr Asp Phe
        370                   375                   380

Asp Glu Ala Ile Val Pro Pro Pro Met Ser Lys Glu Leu Gln Lys Pro
385                   390                   395                   400

Ile Met Leu Met Pro Asp Ala Glu Leu Ser Gly Leu His Leu Ala Asn
                405                   410                   415

Leu Thr His Phe Ser Pro His Tyr Leu Leu Ala Thr His Ser Ser Ala
                420                   425                   430

Gly Ser Thr Arg Leu Leu Leu Leu Ser Tyr Lys Asp Asn Asp Asn Lys
                435                   440                   445

Pro Gly Glu Trp Phe Tyr Arg Val His Ser Ser Val Arg Ile Asn Gly
        450                   455                   460

Leu Val Asn Ala Val Ala Val Ala Pro Tyr Ala Met Asn Glu Phe Tyr
465                   470                   475                   480

Val Gln Thr Val Asn Asn Gly His Thr Tyr Glu Val Ser Leu Lys Ala
                485                   490                   495

Asp Lys Thr Leu Lys Val Glu Arg Ser Tyr Val Gln Leu His Glu Pro
                500                   505                   510

Ala Asp Gln Ile Asp Trp Val Ile Val Lys Gly Cys Ile Trp Asp Gly
                515                   520                   525

Tyr Thr Gly Ala Leu Val Thr Leu Arg Asn Gln His Leu Leu His Ile
        530                   535                   540

Asp Gly Tyr Arg Ile Gly Glu Asp Val Thr Ser Phe Cys Val Val Thr
545                   550                   555                   560

Asn Tyr Leu Val Tyr Thr Gln Leu Asn Ala Met His Phe Val Gln Leu
                565                   570                   575
```

Asp Asp Arg Arg Gln Val Ala Ser Arg Asn Ile Glu Arg Gly Ala Lys
            580   585   590

Ile Val Thr Ala Val Ala Arg Lys Ala Arg Val Val Leu Gln Leu Pro
        595   600   605

Arg Gly Asn Leu Glu Ala Ile Cys Pro Arg Val Leu Val Leu Glu Leu
    610   615   620

Val Gly Asp Leu Leu Glu Arg Gly Lys Tyr Gln Lys Ala Ile Glu Met
625   630   635   640

Ser Arg Lys Gln Arg Ile Asn Leu Asn Ile Ile Phe Asp His Asp Val
            645   650   655

Lys Arg Phe Val Ser Ser Val Gly Ala Phe Leu Asn Asp Ile Asn Glu
            660   665   670

Pro Gln Trp Leu Cys Leu Phe Leu Ser Glu Leu Gln Asn Glu Asp Phe
        675   680   685

Thr Lys Gly Met Tyr Ser Ser Asn Tyr Asp Ala Ser Lys Gln Thr Tyr
    690   695   700

Pro Ser Asp Tyr Arg Val Asp Gln Lys Val Phe Tyr Val Cys Arg Leu
705   710   715   720

Leu Glu Gln Gln Met Asn Arg Phe Val Ser Arg Phe Arg Leu Pro Leu
            725   730   735

Ile Thr Ala Tyr Val Lys Leu Gly Cys Leu Glu Met Ala Leu Gln Val
            740   745   750

Ile Trp Lys Glu Gln Gln Glu Asp Ala Ser Leu Ala Asp Gln Leu Leu
        755   760   765

Gln His Leu Leu Tyr Leu Val Asp Val Asn Asp Leu Tyr Asn Val Ala
    770   775   780

Leu Gly Thr Tyr Asp Phe Gly Leu Val Leu Phe Val Ala Gln Lys Ser
785   790   795   800

Gln Lys Asp Pro Lys Glu Phe Leu Pro Tyr Leu Asn Asp Leu Lys Ala
            805   810   815

Leu Pro Ile Asp Tyr Arg Lys Phe Arg Ile Asp Asp His Leu Lys Arg
            820   825   830

Tyr Thr Ser Ala Leu Ser His Leu Ala Ala Cys Gly Glu Gln His Tyr
    835   840   845

Glu Glu Ala Leu Glu Tyr Ile Arg Lys His Gly Leu Tyr Thr Asp Gly
    850   855   860

Leu Ala Phe Tyr Arg Glu His Ile Glu Phe Gln Lys Asn Ile Tyr Val
865   870   875   880

Ala Tyr Ala Asp His Leu Arg Ala Ile Ala Lys Leu Asp Asn Ala Ser
            885   890   895

Leu Met Tyr Glu Arg Gly Gly Gln Leu Gln Gln Ala Leu Leu Ser Ala
            900   905   910

```
Lys His Thr Leu Asp Trp Gln Arg Val Leu Val Leu Ala Lys Lys Leu
        915             920             925

Ser Glu Pro Leu Asp Gln Val Ala Gln Ser Leu Val Gly Pro Leu Gln
        930             935             940

Gln Gln Gly Arg His Met Glu Ala Tyr Glu Leu Val Lys Glu His Cys
945             950             955             960

Gln Asp Arg Lys Arg Gln Phe Asp Val Leu Leu Glu Gly His Leu Tyr
            965             970             975

Ser Arg Ala Ile Tyr Glu Ala Gly Leu Glu Asp Asp Asp Val Ser Glu
            980             985             990

Lys Ile Ala Pro Ala Leu Leu Ala Tyr Gly Val Gln Leu Glu Ser Ser
        995             1000            1005

Leu Gln Ala Asp Leu Gln Leu Phe Leu Asp Tyr Lys Gln Arg Leu Leu
    1010            1015            1020

Asp Ile Arg Arg Asn Gln Ala Lys Ser Gly Glu Gly Tyr Ile Asp Thr
1025            1030            1035            1040

Asp Val Asn Leu Lys Glu Val Asp Leu Leu Ser Asp Thr Thr Ser Leu
            1045            1050            1055

His Ser Ser Gln Tyr Ser Gly Thr Ser Arg Arg Thr Gly Lys Thr Phe
        1060            1065            1070

Arg Ser Ser Lys Asn Arg Arg Lys His Glu Arg Lys Leu Phe Ser Leu
        1075            1080            1085

Lys Pro Gly Asn Pro Phe Glu Asp Ile Ala Leu Ile Asp Ala Leu His
    1090            1095            1100

Asn His Val Thr Lys Ile Ala Gln Gln Gln Gln Pro Val Arg Asp Thr
1105            1110            1115            1120

Cys Lys Ala Leu Leu Gln Leu Ala Asn Ala Ala Asp Ala Asp Pro Leu
            1125            1130            1135

Ala Ala Ala Leu Gln Arg Glu Phe Lys Thr Leu Leu Gln Ala Val Asp
        1140            1145            1150

Ala Ala Leu Asp Glu Ile Trp Thr Pro Glu Leu Arg Gly Asn Gly Leu
    1155            1160            1165

Met Ala Asp His Leu Thr Gly Pro Asn Val Asp Tyr Leu Ala Leu Gln
    1170            1175            1180

Lys Glu Gln Arg Tyr Ala Leu Leu Ser Pro Leu Lys Arg Phe Lys Pro
1185            1190            1195            1200

Gln Leu Ile Met Met Asp Trp Gln His Glu Ile Leu Gln
        1205            1210
```

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<211> 1349
<212> PRT
<213> Saccharomyces cerevisiae

<400> 7

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Met Val Glu His Asp Lys Ser Gly Ser Lys Arg Gln Glu Leu Arg Ser
1               5                  10                  15

Asn Met Arg Asn Leu Ile Thr Leu Asn Lys Gly Lys Phe Lys Pro Thr
                20                  25                  30

Ala Ser Thr Ala Glu Gly Asp Glu Asp Asp Leu Ser Phe Thr Leu Leu
        35                  40                  45

Asp Ser Val Phe Asp Thr Leu Ser Asp Ser Ile Thr Cys Val Leu Gly
    50                  55                  60

Ser Thr Asp Ile Gly Ala Ile Glu Val Gln Gln Phe Met Lys Asp Gly
65                  70                  75                  80

Ser Arg Asn Val Leu Ala Ser Phe Asn Ile Gln Thr Phe Asp Asp Lys
                85                  90                  95

Leu Leu Ser Phe Val His Phe Ala Asp Ile Asn Gln Leu Val Phe Val
            100                 105                 110

Phe Glu Gln Gly Asp Ile Ile Thr Ala Thr Tyr Asp Pro Val Ser Leu
        115                 120                 125

Asp Pro Ala Glu Thr Leu Ile Glu Ile Met Gly Thr Ile Asp Asn Gly
    130                 135                 140

Ile Ala Ala Ala Gln Trp Ser Tyr Asp Glu Glu Thr Leu Ala Met Val
145                 150                 155                 160

Thr Lys Asp Arg Asn Val Val Val Leu Ser Lys Leu Phe Glu Pro Ile
                165                 170                 175

Ser Glu Tyr His Leu Glu Val Asp Asp Leu Lys Ile Ser Lys His Val
            180                 185                 190

Thr Val Gly Trp Gly Lys Lys Glu Thr Gln Phe Arg Gly Lys Gly Ala
            195                 200                 205

Arg Ala Met Glu Arg Glu Ala Leu Ala Ser Leu Lys Ala Ser Gly Leu
    210                 215                 220

Val Gly Asn Gln Leu Arg Asp Pro Thr Met Pro Tyr Met Val Asp Thr
225                 230                 235                 240

Gly Asp Val Thr Ala Leu Asp Ser His Glu Ile Thr Ile Ser Trp Arg
            245                 250                 255

Gly Asp Cys Asp Tyr Phe Ala Val Ser Ser Val Glu Glu Val Pro Asp
            260                 265                 270

Glu Asp Asp Glu Thr Lys Ser Ile Lys Arg Arg Ala Phe Arg Val Phe
            275                 280                 285

Ser Arg Glu Gly Gln Leu Asp Ser Ala Ser Glu Pro Val Thr Gly Met
    290                 295                 300

Glu His Gln Leu Ser Trp Lys Pro Gln Gly Ser Leu Ile Ala Ser Ile
305                 310                 315                 320

Gln Arg Lys Thr Asp Leu Gly Glu Glu Asp Ser Val Asp Val Ile Phe
            325                 330                 335

Phe Glu Arg Asn Gly Leu Arg His Gly Glu Phe Asp Thr Arg Leu Pro
```

340   345   350

Leu Asp Glu Lys Val Glu Ser Val Cys Trp Asn Ser Asn Ser Glu Ala
        355   360   365

Leu Ala Val Val Leu Ala Asn Arg Ile Gln Leu Trp Thr Ser Lys Asn
        370   375   380

Tyr His Trp Tyr Leu Lys Gln Glu Leu Tyr Ala Ser Asp Ile Ser Tyr
385   390   395   400

Val Lys Trp His Pro Glu Lys Asp Phe Thr Leu Met Phe Ser Asp Ala
            405   410   415

Gly Phe Ile Asn Ile Val Asp Phe Ala Tyr Lys Met Ala Gln Gly Pro
            420   425   430

Thr Leu Glu Pro Phe Asp Asn Gly Thr Ser Leu Val Val Asp Gly Arg
        435   440   445

Thr Val Asn Ile Thr Pro Leu Ala Leu Ala Asn Val Pro Pro Pro Met
        450   455   460

Tyr Tyr Arg Asp Phe Glu Thr Pro Gly Asn Val Leu Asp Val Ala Cys
465   470   475   480

Ser Phe Ser Asn Glu Ile Tyr Ala Ala Ile Asn Lys Asp Val Leu Ile
            485   490   495

Phe Ala Ala Val Pro Ser Ile Glu Glu Met Lys Lys Gly Lys His Pro
            500   505   510

Ser Ile Val Cys Glu Phe Pro Lys Ser Glu Phe Thr Ser Glu Val Asp
        515   520   525

Ser Leu Arg Gln Val Ala Phe Ile Asn Asp Ser Ile Val Gly Val Leu
        530   535   540

Leu Asp Thr Asp Asn Leu Ser Arg Ile Ala Leu Leu Asp Ile Gln Asp
545   550   555   560

Ile Thr Gln Pro Thr Leu Ile Thr Ile Val Glu Val Tyr Asp Lys Ile
            565   570   575

Val Leu Leu Ser Ser Asp Phe Asp Tyr Asn His Leu Val Tyr Glu Thr
            580   585   590

Arg Asp Gly Thr Val Cys Gln Leu Asp Ala Glu Gly Gln Leu Met Glu
        595   600   605

Ile Thr Lys Phe Pro Gln Leu Val Arg Asp Phe Arg Val Lys Arg Val
        610   615   620

His Asn Thr Ser Ala Glu Asp Asp Asn Trp Ser Ala Glu Ser Ser
625   630   635   640

Glu Leu Val Ala Phe Gly Ile Thr Asn Asn Gly Lys Leu Phe Ala Asn
            645   650   655

Gln Val Leu Leu Ala Ser Ala Val Thr Ser Leu Glu Ile Thr Asp Ser
            660   665   670

Phe Leu Leu Phe Thr Thr Ala Gln His Asn Leu Gln Phe Val His Leu
        675   680   685

```
Asn Ser Thr Asp Phe Lys Pro Leu Pro Leu Val Glu Glu Gly Val Glu
    690                 695             700

Asp Glu Arg Val Arg Ala Ile Glu Arg Gly Ser Ile Leu Val Ser Val
705                 710             715                 720

Ile Pro Ser Lys Arg Ser Val Val Leu Gln Ala Thr Arg Gly Asn Leu
                725             730             735

Glu Thr Ile Tyr Pro Arg Ile Met Val Leu Ala Glu Val Arg Lys Asn
                740             745             750

Ile Met Ala Lys Arg Tyr Lys Glu Ala Phe Ile Val Cys Arg Thr His
            755             760             765

Arg Ile Asn Leu Asp Ile Leu His Asp Tyr Ala Pro Glu Leu Phe Ile
    770             775             780

Glu Asn Leu Glu Val Phe Ile Asn Gln Ile Gly Arg Val Asp Tyr Leu
785             790             795             800

Asn Leu Phe Ile Ser Cys Leu Ser Glu Asp Asp Val Thr Lys Thr Lys
                805             810             815

Tyr Lys Glu Thr Leu Tyr Ser Gly Ile Ser Lys Ser Phe Gly Met Glu
            820             825             830

Pro Ala Pro Leu Thr Glu Met Gln Ile Tyr Met Lys Lys Lys Met Phe
        835             840             845

Asp Pro Lys Thr Ser Lys Val Asn Lys Ile Cys Asp Ala Val Leu Asn
    850             855             860

Val Leu Leu Ser Asn Pro Glu Tyr Lys Lys Lys Tyr Leu Gln Thr Ile
865             870             875                 880

Ile Thr Ala Tyr Ala Ser Gln Asn Pro Gln Asn Leu Ser Ala Ala Leu
            885             890             895

Lys Leu Ile Ser Glu Leu Glu Asn Ser Glu Glu Lys Asp Ser Cys Val
            900             905             910

Thr Tyr Leu Cys Phe Leu Gln Asp Val Asn Val Val Tyr Lys Ser Ala
        915             920             925

Leu Ser Leu Tyr Asp Val Ser Leu Ala Leu Leu Val Ala Gln Lys Ser
    930             935             940

Gln Met Asp Pro Arg Glu Tyr Leu Pro Phe Leu Gln Glu Leu Gln Asp
945             950             955             960

Asn Glu Pro Leu Arg Arg Lys Phe Leu Ile Asp Asp Tyr Leu Gly Asn
                965             970             975

Tyr Glu Lys Ala Leu Glu His Leu Ser Glu Ile Asp Lys Asp Gly Asn
            980             985             990

Val Ser Glu Glu Val Ile Asp Tyr Val Glu Ser His Asp Leu Tyr Lys
            995             1000            1005

His Gly Leu Ala Leu Tyr Arg Tyr Asp Ser Glu Lys Gln Asn Val Ile
    1010            1015            1020
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Tyr Asn Ile Tyr Ala Lys His Leu Ser Ser Asn Gln Met Tyr Thr Asp
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Ala Ala Val Ala Tyr Glu Met Leu Gly Lys Leu Lys Glu Ala Met Gly
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Ala Tyr Gln Ser Ala Lys Arg Trp Arg Glu Ala Met Ser Ile Ala Val
           1060                1065                1070

Gln Lys Phe Pro Glu Glu Val Glu Ser Val Ala Glu Glu Leu Ile Ser
           1075                1080                1085

Ser Leu Thr Phe Glu His Arg Tyr Val Asp Ala Ala Asp Ile Gln Leu
       1090                1095                1100

Glu Tyr Leu Asp Asn Val Lys Glu Ala Val Ala Leu Tyr Cys Lys Ala
1105                1110                1115                1120

Tyr Arg Tyr Asp Ile Ala Ser Leu Val Ala Ile Lys Ala Lys Lys Asp
               1125                1130                1135

Glu Leu Leu Glu Glu Val Val Asp Pro Gly Leu Gly Glu Gly Phe Gly
           1140                1145                1150


Ile Ile Ala Glu Leu Leu Ala Asp Cys Lys Gly Gln Ile Asn Ser Gln
           1155                1160                1165

Leu Arg Arg Leu Arg Glu Leu Arg Ala Lys Lys Glu Glu Asn Pro Tyr
       1170                1175                1180

Ala Phe Tyr Gly Gln Glu Thr Glu Gln Ala Asp Asp Val Ser Val Ala
1185                1190                1195                1200

Pro Ser Glu Thr Ser Thr Gln Glu Ser Phe Phe Thr Arg Tyr Thr Gly
               1205                1210                1215

Lys Thr Gly Gly Thr Ala Lys Thr Gly Ala Ser Arg Arg Thr Ala Lys
               1220                1225                1230

Asn Lys Arg Arg Glu Glu Arg Lys Arg Ala Arg Gly Lys Lys Gly Thr
           1235                1240                1245

Ile Tyr Glu Glu Glu Tyr Leu Val Gln Ser Val Gly Arg Leu Ile Glu
       1250                1255                1260

Arg Leu Asn Gln Thr Lys Pro Asp Ala Val Arg Val Val Glu Gly Leu
1265                1270                1275                1280

Cys Arg Arg Asn Met Arg Glu Gln Ala His Gln Ile Gln Lys Asn Phe
               1285                1290                1295

Val Glu Val Leu Asp Leu Leu Lys Ala Asn Val Lys Glu Ile Tyr Ser
           1300                1305                1310

Ile Ser Glu Lys Asp Arg Glu Arg Val Asn Glu Asn Gly Glu Val Tyr
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Tyr Ile Pro Glu Ile Pro Val Pro Glu Ile His Asp Phe Pro Lys Ser
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His Ile Val Asp Phe
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His Ser Thr Glu Glu Val Val Gln Phe Ala Ala Thr Asp Ile Asp Gln
             20                  25                  30

Ser Arg Leu Phe Phe Ala Ser Ser Ala Asn Phe Val Tyr Ala Leu Gln
         35                  40                  45

Leu Ser Ser Phe Gln Asn Glu Ser Ala Gly Ala Lys Ser Ala Met Pro
     50                  55                  60

Val Glu Val Cys Ser Ile Asp Ile Glu Pro Gly Asp Phe Ile Thr Ala
 65                  70                  75                  80

Phe Asp Tyr Leu Ala Glu Lys Glu Ser Leu Leu Ile Gly Thr Ser His
                 85                  90                  95

Gly Leu Leu Leu Val His Asn Val Glu Ser Asp Val Thr Glu Leu Val
             100                 105                 110

Gly Asn Ile Glu Gly Gly Val Lys Cys Ile Ser Pro Asn Pro Thr Gly
         115                 120                 125

Asp Leu Leu Gly Leu Ile Thr Gly Leu Gly Gln Leu Ile Val Met Thr
     130                 135                 140

Tyr Asp Trp Ala Leu Met Tyr Glu Lys Ala Leu Gly Glu Val Pro Glu
145                 150                 155                 160

Gly Gly Tyr Val Arg Glu Thr Asn Asp Leu Ser Val Asn Cys Gly Gly
                 165                 170                 175

Ile Ser Ile Ser Trp Arg Gly Asp Gly Lys Tyr Phe Ala Thr Met Gly
             180                 185                 190

Glu Val Tyr Glu Ser Gly Cys Met Ser Lys Lys Ile Lys Ile Trp Glu
         195                 200                 205

Ser Asp Ser Gly Ala Leu Gln Ser Ser Ser Glu Thr Lys Glu Phe Thr
     210                 215                 220

Gln Gly Ile Leu Glu Trp Met Pro Ser Gly Ala Lys Ile Ala Ala Val
225                 230                 235                 240

Tyr Lys Arg Lys Ser Asp Asp Ser Ser Pro Ser Ile Ala Phe Phe Glu
                 245                 250                 255

Arg Asn Gly Leu Glu Arg Ser Ser Phe Arg Ile Gly Glu Pro Glu Asp
             260                 265                 270

Ala Thr Glu Ser Cys Glu Asn Leu Lys Trp Asn Ser Ala Ser Asp Leu
         275                 280                 285

Leu Ala Gly Val Val Ser Cys Lys Thr Tyr Asp Ala Ile Arg Val Trp
     290                 295                 300

Phe Phe Ser Asn Asn His Trp Tyr Leu Lys Gln Glu Ile Arg Tyr Pro
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Arg Glu Ala Gly Val Thr Val Met Trp Asp Pro Thr Lys Pro Leu Gln
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Leu Ile Cys Trp Thr Leu Ser Gly Gln Val Ser Val Arg His Phe Met
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Trp Val Thr Ala Val Met Glu Asp Ser Thr Ala Phe Val Ile Asp Asn
              355               360               365


Ser Lys Ile Leu Val Thr Pro Leu Ser Leu Ser Leu Met Pro Pro Pro
    370               375               380

Met Tyr Leu Phe Ser Leu Ser Phe Ser Ser Ala Val Arg Asp Ile Ala
385               390               395               400

Tyr Tyr Ser Arg Asn Ser Lys Asn Cys Leu Ala Val Phe Leu Ser Asp
              405               410               415

Gly Asn Leu Ser Phe Val Glu Phe Pro Ala Pro Asn Thr Trp Glu Asp
              420               425               430

Leu Glu Gly Lys Asp Phe Ser Val Glu Ile Ser Asp Cys Lys Thr Ala
              435               440               445

Leu Gly Ser Phe Val His Leu Leu Trp Leu Asp Val His Ser Leu Leu
    450               455               460

Cys Val Ser Ala Tyr Gly Ser Ser His Asn Lys Cys Leu Ser Ser Gly
465               470               475               480

Gly Tyr Asp Thr Glu Leu His Gly Ser Tyr Leu Gln Glu Val Glu Val
              485               490               495

Val Cys His Glu Asp His Val Pro Asp Gln Val Thr Cys Ser Gly Phe
              500               505               510

Lys Ala Ser Ile Thr Phe Gln Thr Leu Leu Glu Ser Pro Val Leu Ala
              515               520               525

Leu Ala Trp Asn Pro Ser Lys Arg Asp Ser Ala Phe Val Glu Phe Glu
    530               535               540

Gly Gly Lys Val Leu Gly Tyr Ala Ser Arg Ser Glu Ile Met Glu Thr
545               550               555               560

Arg Ser Ser Asp Asp Ser Val Cys Phe Pro Ser Thr Cys Pro Trp Val
              565               570               575

Arg Val Ala Gln Val Asp Ala Ser Gly Val His Lys Pro Leu Ile Cys
              580               585               590

Gly Leu Asp Asp Met Gly Arg Leu Ser Ile Asn Gly Lys Asn Leu Cys
              595               600               605

Asn Asn Cys Ser Ser Phe Ser Phe Tyr Ser Glu Leu Ala Asn Glu Val
    610               615               620

Val Thr His Leu Ile Ile Leu Thr Lys Gln Asp Phe Leu Phe Ile Val
625               630               635               640

Asp Thr Lys Asp Val Leu Asn Gly Asp Val Ala Leu Gly Asn Val Phe
              645               650               655
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Phe Val Ile Asp Gly Arg Arg Arg Asp Glu Glu Asn Met Ser Tyr Val
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Asn Ile Trp Glu Arg Gly Ala Lys Val Ile Gly Val Leu Asn Gly Asp
            675   680   685

Glu Ala Ala Val Ile Leu Gln Thr Met Arg Gly Asn Leu Glu Cys Ile
        690   695   700

Tyr Pro Arg Lys Leu Val Leu Ser Ser Ile Thr Asn Ala Leu Ala Gln
705   710   715   720

Gln Arg Phe Lys Asp Ala Phe Asn Leu Val Arg Arg His Arg Ile Asp
                725   730   735

Phe Asn Val Ile Val Asp Leu Tyr Gly Trp Gln Ala Phe Leu Gln Ser
            740   745   750

Ala Val Ala Phe Val Glu Gln Val Asn Asn Leu Asn His Val Thr Glu
            755   760   765

Phe Val Cys Ala Met Lys Asn Glu Asp Val Thr Glu Thr Leu Tyr Lys
        770   775   780

Lys Phe Ser Phe Ser Lys Lys Gly Asp Glu Val Phe Arg Val Lys Asp
785   790   795   800

Ser Cys Ser Asn Lys Val Ser Ser Val Leu Gln Ala Ile Arg Lys Ala
                805   810   815

Leu Glu Glu His Ile Pro Glu Ser Pro Ser Arg Glu Leu Cys Ile Leu
            820   825   830

Thr Thr Leu Ala Arg Ser Asp Pro Pro Ala Ile Glu Glu Ser Leu Leu
            835   840   845

Arg Ile Lys Ser Val Arg Glu Met Glu Leu Leu Asn Ser Ser Asp Asp
    850   855   860

Ile Arg Lys Lys Ser Cys Pro Ser Ala Glu Glu Ala Leu Lys His Leu
865   870   875   880

Leu Trp Leu Leu Asp Ser Glu Ala Val Phe Glu Ala Ala Leu Gly Leu
            885   890   895

Tyr Asp Leu Asn Leu Ala Ala Ile Val Ala Leu Asn Ser Gln Arg Asp
            900   905   910

Pro Lys Glu Phe Leu Pro Tyr Leu Gln Glu Leu Glu Lys Met Pro Glu
            915   920   925

Ser Leu Met His Phe Lys Ile Asp Ile Lys Leu Gln Arg Phe Asp Ser
    930   935   940

Ala Leu Arg Asn Ile Val Ser Ala Gly Val Gly Tyr Phe Pro Asp Cys
945   950   955   960

Met Asn Leu Ile Lys Lys Asn Pro Gln Leu Phe Pro Leu Gly Leu Leu
            965   970   975

Leu Ile Thr Asp Pro Glu Lys Lys Leu Val Val Leu Glu Ala Trp Ala
            980   985   990

Asp His Leu Ile Asp Glu Lys Arg Phe Glu Asp Ala Ala Thr Thr Tyr
        995   1000   1005

Leu Cys Cys Cys Lys Leu Glu Lys Ala Ser Lys Ala Tyr Arg Glu Cys
        1010   1015   1020

Gly Asp Trp Ser Gly Val Leu Arg Val Gly Ala Leu Met Lys Leu Gly
1025   1030   1035   1040

Lys Asp Glu Ile Leu Lys Leu Ala Tyr Glu Leu Cys Glu Glu Val Asn
                    1045   1050   1055

Ala Leu Gly Lys Pro Ala Glu Ala Ala Lys Ile Ala Leu Glu Tyr Cys
                    1060   1065   1070

Ser Asp Ile Ser Gly Gly Ile Ser Leu Leu Ile Asn Ala Arg Glu Trp
            1075   1080   1085

Glu Glu Ala Leu Arg Val Ala Phe Leu His Thr Ala Asp Asp Arg Ile
        1090   1095   1100

Ser Val Val Lys Ser Ser Ala Leu Glu Cys Ala Ser Gly Leu Val Ser
1105   1110   1115   1120

Glu Phe Lys Glu Ser Ile Glu Lys Val Gly Lys Tyr Leu Thr Arg Tyr
                    1125   1130   1135

Leu Ala Val Arg Gln Arg Arg Leu Leu Leu Ala Ala Lys Leu Lys Ser
            1140   1145   1150

Glu Glu Arg Ser Val Val Asp Leu Asp Asp Asp Thr Ala Ser Glu Ala
        1155   1160   1165

Ser Ser Asn Leu Ser Gly Met Ser Ala Tyr Thr Leu Gly Thr Arg Arg
        1170   1175   1180

Gly Ser Ala Ala Ser Val Ser Ser Ser Asn Ala Thr Ser Arg Ala Arg
1185   1190   1195   1200

Asp Leu Arg Arg Gln Arg Lys Ser Gly Lys Ile Arg Ala Gly Ser Ala
            1205   1210   1215

Gly Glu Glu Met Ala Leu Val Asp His Leu Lys Gly Met Arg Met Thr
        1220   1225   1230

Asp Gly Gly Lys Arg Glu Leu Lys Ser Leu Leu Ile Cys Leu Val Thr
        1235   1240   1245

Leu Gly Glu Met Glu Ser Ala Gln Lys Leu Gln Gln Thr Ala Glu Asn
        1250   1255   1260

Phe Gln Val Ser Gln Val Ala Ala Val Glu Leu Ala His Asp Thr Val
1265   1270   1275   1280

Ser Ser Glu Ser Val Asp Glu Glu Val Tyr Cys Phe Glu Arg Tyr Ala
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Gln Lys Thr Arg Ser Thr Ala Arg Asp Ser Asp Ala Phe Ser Trp Met
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Leu Lys Val Phe Ile Ser Pro
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            20                  25                  30

Ala Val Ser Thr Lys Asn Glu Leu Leu Leu Leu Glu Asn Asn Leu Ile
        35                  40                  45

Ser Ser Thr Ile Lys Trp Ala Glu Gln Arg Arg Glu Leu Glu Val Ile
    50                  55                  60

Ser Leu Ser Phe Arg Thr Asp Gly Asn Gln Ile Val Val Ile Leu Ala
65                  70                  75                  80

Asp Gly Arg Ala Leu Ile Val Glu Asp Gly Glu Val Met Asp Leu Glu
                85                  90                  95

Ile Ala Glu Leu Thr Asp Thr Thr Val Ser Ala Ala Glu Trp Thr Ala
            100                 105                 110

Asp Glu Gln Thr Leu Ala Leu Ala Asp Asn Gln Thr Leu Tyr Leu Ala
        115                 120                 125

Asp Ser Ser Leu Val Pro Phe Ala Glu Arg Pro Leu Ile Phe Ser Glu
    130                 135                 140

Asn Glu Arg Lys Ser Ala Pro Val Asn Val Gly Trp Gly Ser Glu Ser
145                 150                 155                 160

Thr Gln Phe Arg Gly Ser Ala Gly Lys Leu Lys Pro Gly Glu Lys Ile
                165                 170                 175

Glu Lys Glu Lys Glu Gln Ile Glu Gln His Ser Arg Lys Thr Ser Val
            180                 185                 190

His Trp Arg Trp Asp Gly Glu Ile Val Ala Val Ser Phe Tyr Ser Ser
            195                 200                 205

Gln Asn Asp Thr Arg Asn Leu Thr Val Phe Asp Arg Asn Gly Glu Ile
    210                 215                 220

Leu Asn Asn Met Asn Ile Arg Asn Ile Tyr Leu Ser His Cys Phe Ala
225                 230                 235                 240

His Lys Pro Asn Ala Asn Leu Leu Cys Ser Ala Ile Gln Glu Asn Gly
                245                 250                 255

Ser Asp Asp Arg Ile Val Ile Tyr Glu Arg Asn Gly Glu Thr Arg Asn
            260                 265                 270

Ser Tyr Val Val Lys Trp Pro Ala Asn Gln Ile Glu Asp Arg Arg Ile
        275                 280                 285

Ile Glu Lys Ile Glu Trp Asn Ser Thr Gly Thr Ile Leu Ser Met Gln
    290                 295                 300

Thr Ser Leu Gly Lys Lys His Gln Leu Glu Phe Trp His Leu Ser Asn
305                 310                 315                 320
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Tyr Glu Phe Thr Arg Lys Cys Tyr Trp Lys Phe Ser Glu Ser Ile Ile
                    325   330   335

Trp Lys Trp Ser Thr Val Glu Cys Gln Asn Ile Glu Val Leu Leu Glu
            340   345   350

Ser Gly Gln Phe Phe Ser Val His Ile Thr Pro Thr Ala Ser Phe Ser
            355   360   365

Asp Val Ile Ser Gln Asn Val Val Val Ala Thr Asp Glu Leu Arg Met
    370   375   380

Tyr Ser Leu Cys Arg Arg Val Val Pro Pro Pro Met Cys Asp Tyr Ser
385   390   395   400

Ile Gln Cys Leu Ser Asp Ile Val Ala Tyr Thr Thr Ser Thr His His
            405   410   415

Val His Val Ile Thr Ser Asp Trp Lys Ile Ile Ser Cys Met Leu Phe
            420   425   430

Phe Lys Lys Lys Lys Arg Asn Tyr Ser Asn Pro Phe Phe Arg Lys Lys
            435   440   445

Tyr Ile Leu Glu Ile Leu Lys Val Pro Ser His Lys Thr Tyr Phe Ala
    450   455   460

Cys Phe Ala Val Ser Gln Asp Thr Asp Gly Tyr Lys Phe Asn Ser Asp
465   470   475   480

Arg Ala Ser Ile Asp Glu Val Leu His Thr Glu Val Thr Glu Gly Ile
            485   490   495

Ile Cys Gly Phe Val Tyr Asp Glu Pro Ser Glu Ser Tyr Ile Ile Trp
            500   505   510

Asn Val Ser His Gly Lys His Gln Ile Ser Arg Val Gly Ala Asn Pro
            515   520   525

Glu Lys Ile Phe Glu Gly Glu Asn Ile Gly Trp Ile Gly Val Asn Pro
    530   535   540

Ser Asn Lys His Val Glu Ile Ala Ser Asn Asp Gly Lys Phe Ile Asp
545   550   555   560

Leu Asn Thr Lys Glu Glu Leu Phe Lys Ile Asp Lys Phe Glu Ser Thr
            565   570   575

Glu Val His Phe Ile Gln Val Cys His Gly Ile Leu Asn His His Val
            580   585   590

Ile Gln Val Asp Asn Ser Met Leu Phe Leu Asp Ser Glu Arg Val Ser
            595   600   605

Gln Asp Ala Ile Ser Ile Leu Thr Arg Gly Ser Asp Ile Leu Leu Ile
    610   615   620

Asp Phe Asp Asn Lys Leu Arg Phe Ile Asp Ala Glu Ser Gly Lys Thr
625   630   635   640

Leu Glu Asp Val Arg Asn Val Glu Ala Gly Cys Glu Leu Val Ala Cys
            645   650   655

Asp Ser Gln Ser Ala Asn Val Ile Leu Gln Ala Ala Arg Gly Asn Leu
         660   665   670

Glu Thr Ile Gln Pro Arg Arg Tyr Val Met Ala His Thr Arg Asp Leu
         675   680   685

Leu Asp Arg Lys Glu Tyr Ile Ala Ser Phe Lys Trp Met Lys Lys His
    690   695   700

Arg Val Asp Met Ser Phe Ala Met Lys Tyr Lys Gly Asp Asp Leu Glu
705   710   715   720

Asp Asp Ile Pro Ile Trp Leu Lys Thr Ser Asn Asp Ser Gln Phe Leu
             725   730   735

Glu Gln Leu Leu Ile Ser Cys Thr Glu Val Phe Glu Asp Ala Gly Ser
         740   745   750

Ser Leu Cys Met Thr Val Ala Arg Tyr Val Arg Asp Leu Ser Asp Ala
         755   760   765

Glu Lys Thr Lys Met Phe Pro Leu Leu Leu Thr Ala Leu Leu Ser Ala
    770   775   780

Arg Ser Lys Pro Ser Lys Val Asn Asp Cys Leu Lys Glu Val Gln Glu
785   790   795   800

His Val Glu Lys Ile Ala Asp Arg Lys Asp Val Phe Thr Arg Asn Ser
             805   810   815

Leu His His Ile Ser Phe Phe Val Pro Ala Lys Glu Leu Phe Asn Cys
             820   825   830

Ala Leu Ser Thr Tyr Asp Leu Lys Leu Ala Gln Gln Val Ala Glu Ala
         835   840   845

Ser Asn Tyr Asp Pro Lys Glu Tyr Leu Pro Val Leu Asn Lys Leu Asn
    850   855   860

Arg Val Met Cys Thr Leu Glu Arg Gln Tyr Arg Ile Asn Val Val Arg
865   870   875   880

Glu Ala Trp Ile Asp Ala Val Ser Ser Leu Phe Leu Leu Asp Ser Ser
             885   890   895

Lys Glu Arg Gly Ser Glu Glu Thr Trp Trp Asn Asp Ile Glu Asp Ile
         900   905   910

Ile Ile Gln Arg Glu Lys Leu Tyr Gln Asp Ala Leu Thr Leu Val Lys
         915   920   925

Pro Gly Asp Arg Arg Tyr Lys Gln Cys Cys Glu Leu Tyr Ala Glu Leu
    930   935   940

Glu Arg Lys Val His Trp Arg Glu Ala Ala Leu Phe Tyr Glu Leu Ser
945   950   955   960

Gly Asn Ser Glu Lys Thr Leu Lys Cys Trp Glu Met Ser Arg Asp Val
             965   970   975

Asp Gly Leu Ala Ala Ser Ala Arg Arg Leu Ala Val Asp Ala Gly Lys
         980   985   990

Leu Lys Ile His Ala Ile Lys Met Ser Thr Thr Leu Arg Glu Ala Arg

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Gln Pro Lys Glu Leu Ala Lys Ala Leu Lys Leu Ala Gly Ser Ser Ser
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Thr Gln Ile Val His Val Leu Cys Asp Ala Phe Glu Trp Leu Asp Ala
1025                 1030                 1035                 1040

Ser Arg Glu Val Glu Val Gly Lys Glu Glu Ala Leu Lys Lys Ala Ala
                1045                 1050                 1055

Leu Ser Arg Asn Asp Gln Val Leu Met Asp Leu Glu Arg Arg Lys Thr
            1060                 1065                 1070

Glu Phe Glu Asn Tyr Lys Lys Arg Leu Ala Val Val Arg Glu Asn Lys
            1075                 1080                 1085

Leu Lys Arg Val Glu Gln Phe Ala Ala Gly Glu Val Asp Asp Leu Arg
    1090                 1095                 1100

Asp Asp Ile Ser Val Ile Ser Ser Ile Ser Ser Arg Ser Gly Ser Ser
1105                 1110                 1115                 1120

Lys Val Ser Met Ala Ser Thr Val Arg Arg Lys Gln Ile Glu Lys Lys
                1125                 1130                 1135


Lys Ser Ser Leu Lys Glu Gly Gly Glu Tyr Glu Asp Ser Ala Leu Leu
            1140                 1145                 1150

Asn Val Leu Ser Glu Asn Tyr Arg Trp Leu Glu Asn Ile Gly Ser Glu
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